

Patterns, Presentations and Prognosis of Nasal Polyps

O. A. Olajuyin¹ · T. G. Olajide²

Received: 29 June 2016 / Accepted: 4 April 2017
© Association of Otolaryngologists of India 2017

Abstract Few studies have documented the characteristic features of nasal polyps in the developing countries. In this study, we described the patterns, presentations and prognosis of nasal polyps seen in clinical setting, with a view to improve our understanding of its clinical and epidemiological characteristics. The study was a 10-year retrospective analysis of histologically-confirmed nasal polyps seen between January 2006 and December 2015. Records of patients with intranasal masses were retrieved from our hospital's records department, clinics, wards and theatre suites. Those with nasal polyps were recruited into the study. The results were descriptively analyzed using SPSS statistical software package version 10. There were 84 patients with intranasal masses seen within the reviewed period. Of this, 52 (61.9%) were histologically-confirmed nasal polyps. There were 22 males and 30 females. Their age ranges from 16 to 69 years. The most frequent symptom is nasal obstruction occurring in 76.9% of the cases. None of the patients had epistaxis. Thirty-one (59.6%) were associated with various complications either singly or multiple (Table 1). All (100%) were treated with conventional forceps excision. Eleven (21.2%) of them had recurrence between 3 and 5 years after surgery. None of the polyps or their recurrence exhibited malignant transformation. Nasal polyp is the most common intranasal mass seen in clinical practice. Its rarity in children and

propensity for recurrence are reaffirmed. Although, recurrence is a major prognostic challenge, nasal polyp does not exhibit malignant transformation.

Keywords Nasal polyp · Patterns · Presentation · Recurrence

Introduction

The need to have a clear understanding of the clinical and epidemiological characteristics of nasal polyps cannot be overstated. Although not a life-threatening condition, nasal polyp may be associated with life-threatening complications. These include; obstructive sleep apnoea, sinusitis, orbital cellulitis, meningitis, aneurysm and thrombo-embolism [1]. Epidemiologically, nasal polyp is found in both sexes and all races and age groups. It is however rare in children and if found in less than 10 years of age, cystic fibrosis should be excluded [2]. Overall, polyp is commoner in men than women [2]. Polyp develops when oedematous stroma ruptures and herniates through the basement membrane [3]. This occurs commonly in the lining of the nose, ethmoidal and maxillary paranasal sinuses. Pathologically, polyps show marked oedema of the connective tissue stroma and infiltration with plasma, neutrophil and eosinophilic cells [2, 3]. Although, the cause is not well established, between 20 and 40% of cases will have co-existing bronchial asthma [2]. Other co-factors are rhinosinusitis, aspirin sensitivity and allergy [4, 5]. The symptoms include nasal obstruction, nasal discharge, postnasal drip, anosmia, hyponasal speech and snoring. Benign polyp is insensitive to touch and does not bleed. A history of epistaxis or contact bleeding should raise suspicion of the possibility of neoplastic polyp [3]. Unilateral

✉ O. A. Olajuyin
oyebanjiolajuyin@yahoo.com

¹ Department of Ear, Nose and Throat Surgery, Ekiti State University Teaching Hospital, Ado – Ekiti, Ekiti State, Nigeria

² Department of Ear, Nose and Throat Surgery, Federal Teaching Hospital, Ido – Ekiti, Ekiti State, Nigeria

Table 1 Showing frequency distribution of the presenting complaints, radiological findings and complications

Variable	Frequency	%
Presenting complaints		
Nasal obstruction	40	76.9
Snoring	32	61.5
Visible nasal mass	25	48.1
Nasal discharge (watery, mucous, purulent)	14	26.9
Paroxysmal sneezing	10	19.2
Loss of sense of smell	9	17.3
Headache	8	15.4
Facial pain	5	9.6
Radiological findings		
Opacification of ethmoid and maxillary sinuses	46	88.5
Soft tissue opacity in the nasal cavity	41	78.9
Soft tissue opacity in the nasopharynx	26	50.0
Dome-shaped soft tissue opacity in the maxillary sinus	12	23.1
Fluid level in the maxillary sinus	6	11.5
Clear paranasal sinuses	4	7.7
Complications		
Acute rhinosinusitis	5	9.6
Epiphora	6	11.5
Anosmia	9	17.3
Obstructive sleep apnoea	28	53.8

Some patients have multiple complaints/radiological findings/complications

polyp is rare and associated with a range of conditions that needed further investigations both in adults and children [2]. Anatomically, polyp may be described as Ethmoidal or Antrochoanal [6, 7], depending on the site and location of the polyp. Imaging studies are essential in the determination of the site and extent in the nose and paranasal sinuses and to rule out sinister nasal conditions. The treatment can be medical and/or surgical. The use of corticosteroid nose drops or sprays has been found useful in some patients [8, 9]. Other therapeutic methods are short course oral steroids [10] and intrapolyp steroid injection [11]. The surgical techniques vary from the use of old-fashioned snare to modern day endoscope [12, 13]. Recurrence following surgery however is a great therapeutic challenge [1–3, 14]. In clinical setting, polyp must be differentiated from inverted papillomas, encephalocoeles, carcinoma, sarcomas and angiofibromas. Although widely reported by foreign authors, there is scant publication on the subject from this part of the world. Thus, we embarked on this study to document our own experience and improve our understanding of its clinical and epidemiological characteristics.

Patients and Methods

Study Setting

The study was conducted in two tertiary hospitals (Ekiti State University Teaching Hospital, Ado – Ekiti and Federal Teaching Hospital, Ido – Ekiti), the only centers with Otolaryngological services in the study area. The hospitals also receive referrals from public and private hospitals within the state and from neighboring towns in other adjoining states.

Study Design and Data Collection

Records of patients with intranasal masses were retrieved from the record departments of the hospitals, clinics, wards and theatre suites. Patients with histologically-confirmed nasal polyps were recruited into the study. The information extracted from their case files were biodata, presenting complaints at first attendance, duration of symptoms, evidence of allergy, X-ray findings, histological features, treatment and outcome.

Exclusion Criteria

Excluded were patients with Meningo-encephalocele, cystic fibrosis, Neoplasia, Septal haematoma and Septal abscess.

Data Analysis

The results were descriptively analyzed using SPSS statistical software package version 10.

Results

There were 84 patients with intranasal masses seen within the reviewed period. Of this, 52 (61.9%) were cases of nasal polyps. This consists of 22 males and 30 females. Their age ranges from 16 to 69 years. Figure 1 shows the Age and Sex distribution of the cases. Nineteen (36.5%) of the cases were unilateral while 33 (63.5%) were bilateral. Of the unilateral cases, 8 (42.1%) were found on the right and 11 (57.9%) on the left. Thirteen (68.4%) of the unilateral cases involved the ipsilateral maxillary sinus extending posteriorly as antro-choanal polyps. Table 1 shows the symptoms with which the patients presented to the clinic. The duration of symptoms varies from 4 to 28 months. The most common symptom is nasal obstruction occurring in 76.9% of the cases. Other symptoms were Snoring (61.5%), visible nasal mass (48.1%), (Figs 2, 3) watery, mucous and/or purulent nasal discharge (26.9%), Paroxysmal Sneezing (19.2%), Loss of sense of smell (17.3%), Headache (15.4%) and Facial pain (9.6%). None of the patients had epistaxis. The characteristic radiological features are shown in Table 1. Five (9.6%) of the cases were complicated with Acute rhinosinusitis, 6 (11.5%)

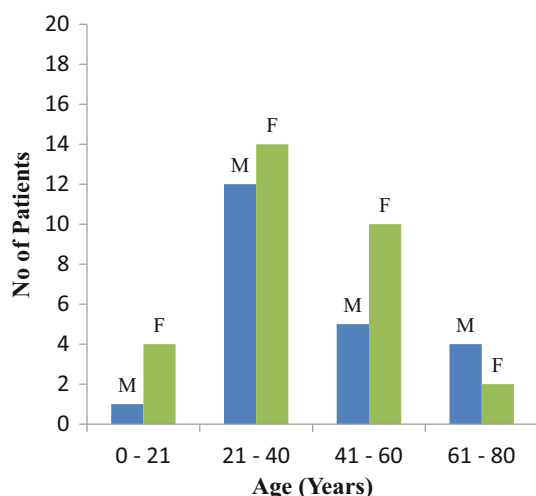


Fig. 1 Age and sex distribution of the patients

epiphora, 9 (17.3%) Anosmia and 28 (53.8%) Obstructive Sleep Apnoea. Due to their large sizes, all (100%) were treated with surgical excision using forceps technique. About 21.2% of the cases had recurrence between 3 and 5 years after surgery. Six (54.5%) of those with the recurrence had concomitant allergic rhinitis, 4 (36.4%) had antrochoanal polyps while 1 (9.1%) was neither allergic nor antrochoanal in their first appearance. None of the polyps or their recurrence exhibited malignant transformation.

Discussion

Few studies have described the characteristic features of nasal polyp in the developing countries. In this study, we described the patterns, presentations and prognosis of nasal polyps seen in clinical setting. Of the 84 cases of intranasal mass seen in the reviewed period, 52 (61.9%) met the inclusion criteria as polyps. Although some workers have classified haemangioma, squamous cell carcinoma, inverted papilloma and nasopharyngeal angiofibroma as polyps [15, 16], in the present study, those neoplastic conditions were excluded from our cases. The aim was to avoid raising the apparent prevalence of polyp while dwarfing the numerical strength of malignant or other sinister nasal conditions. Thus, ours were cases with clinical, radiological and histological evidence of benign nasal polyps. As noted, the condition constitutes 61.9% of all the intranasal masses found in the study. This figure, which constitutes the mode, is comparable with the 83.7% reported by Chukuezi [16]. It also concurs with the remark of Ballenger that polyp is the most common benign tumor in the nose [17]. Thus, this study, have re-affirmed the reports that polyp is the most common benign intranasal mass seen in clinical practice. However, the Male to Female ratio of 1:1.4 is at variance with reports from other Countries. As reported, the ratio varies from 2:1 to 4:1 [2]. Interestingly, Chukuezi, in part of Nigeria with similar socio-cultural background to ours reported a ratio of 1:1.09 [16]. This

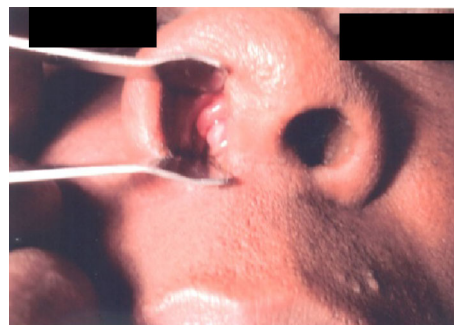


Fig. 2 Right nasal polyp



Fig. 3 Left nasal polyp

correlates well with our own findings and seems to show that polyp has no sex predilection among Nigerians. However more studies are needed to validate this observation. It has been reported that polyp is rare in children except in those with cystic fibrosis [2, 3]. Chukuezi in his study recorded polyp in a 6½ years old child with cystic fibrosis [16]. In this series, none of the cases had cystic fibrosis and only one of them was less than 18 years thus affirming the rarity of polyp in children. It is not clear why polyp is rare in children. Gravity has been known to exert a gradual pull on fluid-filled cells in the nose which over a period of time culminates into nasal polyps [7, 18]. Since the ability of gravity to pull on the oedematous mucosa will depend on posture and duration of exposure to gravity, it may be surmised that children are 'immune' to polyps because they crawl or have been walking for a period not long enough for gravity to have any significant pull on their nasal mucosa. However, polyps have been recorded in dogs in which gravitational pull on their nasal mucosa is negligible [19]. It therefore needs to be proven empirically that ineffective gravitational pull constitutes the basis for the rarity of polyps in children. Nineteen of our cases were unilateral polyps. Of these, 13 (68.4%) were antrochoanal polyps. This finding agrees with the study of Chukuezi where-in most of the unilateral polyps were found to be antrochoanal [16]. It is however pertinent to note that not all unilateral nasal masses are benign polyps. Indeed, benign unilateral polyps is said to be rare and must be thoroughly investigated to ascertain the benignity of the lesion. Late presentation among patients was observed in this study. As found, the duration of symptoms varied between 4 and 28 months. This invariably was responsible for the large sized polyps and complications recorded in this study. Curiously, the victims, despite its impact on their quality of life, endured the condition for so long as to cause significant morbidities. Although, being insidious may attenuate their zeal to seek early medical attention, records showed that some of the patients were indeed

acutely ill at the time of presentation yet failed to seek early help. Okafor [20] noted in patients with acute otitis media that acute problems are often delayed whilst trying around locally for a remedy. Thus, negligence characteristic of our setting appears to be a major factor in the failure of the cases in this study to seek early Otolaryngological help. Also, ignorance, poverty and poor road network characteristic of our setting may have contributed to the delay in some cases. Therefore concerted efforts at improving the socio-economic wellbeing, access to health care and health education are required to reduce the incidence of late presentation among victims of nasal polyps.

Although, polyp is not a life-threatening condition, it may be associated with life-threatening complications. As this study shows, there were 46 (88.5%) cases with radiological evidence of rhinosinusitis. Though, rhinosinusitis could cause and/or complicate nasal polyps, 5 (9.6%) of the cases were acute in onset and would appear to be a complication than a cause. Pathophysiologically, complications arise due to the obstructive effects of the nasal polyps. Thus, the relief of nasal obstruction constitutes the primary goal of therapeutic intervention. As established by workers, treatment could be medical and/or surgical [21], each with its own merits and demerits. The choice between the two however depends on the size, site and complications of the polyps and risks versus benefits of the treatment options. Where the polyp is too large as to respond to medication, surgery is preferred. This was the case in this study. Also, in the cases of antrochoanal polyps, surgery was adopted to deal with the intra-antral components of the polyp. Furthermore, surgery was used to drain the paranasal sinuses and obtain whole tissue for histological examination. Recurrence following surgery however was a great therapeutic challenge. As we noted, 21.2% in the series re-occurred following surgical excision. Recurrence following surgical extirpation of nasal polyps had been reported [1–3, 14, 16]. It is however not well understood why polyps re-occur following surgical or medial intervention. Concurrent allergy, incomplete removal and cryptic polyps at the time of surgical excision are possible factors. As noted, 6 (54.5%) of the recurrent cases had concomitant allergic rhinitis while 4 (36.4%) had antrochoanal polyps. In spite of this propensity for recurrence however, none of the polyps exhibited malignant transformation.

Conclusion

Nasal polyp is the most common intranasal mass seen in clinical practice. Its rarity in children and propensity for recurrence are reaffirmed. Although, recurrence is a major therapeutic challenge, nasal polyp does not exhibit malignant transformation.

Compliance with Ethical Standards

Conflict of interest O. A. Olajuyin and T. G. Olajide declares that they have no conflict of interest.

Ethical Approval This article does not contain any studies with human participants or animals performed by any of the authors.

References

1. Mayo clinic (2016) Nasal polyps. www.mayoclinic.org/diseases-conditions/nasal-polyps/.../con-20023206. Accessed 3 Jan 2016
2. Johnston M, Jones N (2016) Nasal polyps. ENTUK entuk.org/nasal-polyps. Accessed 10 May 2016
3. Roland NJ, McRae RDR, McCombe AW (1995) Nasal polyps. In: Jones AS, Maran AGD (eds) Key topics in otolaryngology and head and neck surgery, 1st edn. Bioscientific publishers Ltd, Oxford, pp. 172–174
4. Newton JR, Ah-See KW (2008) A review of nasal polyposis. *Ther Clin Risk Manag* 4(2):507–512
5. Bernstein JM, Gorfien J, Noble B (1995) Role of allergy in nasal polyposis: a review. *Otolaryngol Head Neck Surg* 113(6):724–732
6. Wakode PT (eds) (2002) Nasal polyps. In: Clinical methods in ENT. Jaypee Brothers, New Delhi, pp 78–9
7. Wikipedia, the free encyclopedia (2016) Nasal polyp. en.wikipedia.org/wiki/Nasalpolyp. Accessed 3 Jan 2016
8. Aukema AA, Mulder G, Fokkens W (2005) Treatment of nasal polyposis and chronic rhinosinusitis with fluticasone propionate nasal drops reduces the need for sinus surgery. *J Allergy Clin Immunol* 115(5):1017–1023
9. Bachert C, Hörmann K, Mösges R, Rasp G, Riechelmann H, Müller R, Luckhaupt H, Stuck BA, Rudack C (2003) An update on the diagnosis and treatment of sinusitis and nasal polyposis. *Allergy* 58(3):176–191
10. Alobid I, Benitez P, Pujols L, Maldonado M, Bernal-Sprekelsen M, Morello A, Picado C, Mullol J (2006) Severe nasal polyposis and its impact on quality of life. The effect of a short course of oral steroids followed by long-term intranasal steroid treatment. *Rhinology* 44(1):8–13
11. Becker SS, Rasamny JK, Han JK, Patrie J, Gross CW (2007) Steroid injection for sinonasal polyps: the University of Virginia experience. *Am J Rhinol* 21(1):64–69
12. Stammberger H (1999) Surgical treatment of nasal polyps: past, present, and future. *Allergy* 54(suppl 53):7–11
13. Tosun F, Kemikli K, Yetkin S, Ozgen F, Durmaz A, Gerek M (2009) Impact of endoscopic sinus surgery on sleep quality in patients with chronic nasal obstruction due to nasal polyposis. *J Craniofacial Surg* 20(2):446–449
14. Murray JAM (1988) Allergic rhinitis and nasal polyps. In: Jones AS, Maran AGD (eds) Logan Turne's diseases of the nose, throat and ear, 10th edn. Butterworth-Heinemann, Oxford, pp 54–55
15. Gray RF, Hawthorne M (eds) (1992) Nasal polypi. In: Synopsis of otolaryngology, 5th edn. Butterworth-Heinemann, Oxford, pp 272–276
16. Chukuezi AB (1994) Nasal polyposis in a Nigerian district hospital. *West Afr J Med* 13(4):231–233
17. Ballenger JJ (1996) Chronic rhinitis and nasal obstruction—nasal polyps. In: Ballenger JJ, Snow JB (eds) Otorhinolaryngology, head and neck surgery, 15th edn. Williams & Wilkins, Baltimore, pp 129–134
18. SINUS PRO (2016) What are nasal polyps? www.sinus-pro.com/polyps.asp. Accessed 3 Jan 2016
19. Holt DE, Goldschmidt MH (2011) Nasal polyps in dogs: five cases. *J Small Animal Pract* 52(12):660–663. doi: [10.1111/j.1748-5827.2011.01152.x](https://doi.org/10.1111/j.1748-5827.2011.01152.x). Accessed 30 July 2015
20. Okafor BC (1983) Otolaryngology in South-Eastern Nigeria I. Pattern of diseases of the ear. *Nig Med J* 13(1):11–19
21. Alobid I, Benitez P, Bernal-Sprekelsen M, Roca J, Alonso J, Picado C, Mullol J (2005) Nasal polyposis and its impact on quality of life: comparison between the effects of medical and surgical treatments. *Allergy* 60(4):452–458